AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A process control system having measurement devices ~~(2a, 2b, 2c)~~ and actuators ~~(3)~~, wherein

a)   all the measurement devices ~~(2a, 2b, 2c)~~ and actuators ~~(3)~~ contain means ~~(1)~~ for information processing and for data interchange between the measurement devices ~~(2a, 2b, 2c)~~ and actuators ~~(3)~~ ,

b)   all the measurement devices ~~(2a, 2b, 2c)~~ and actuators ~~(3)~~ are connected by means ~~(4a, 4b, 4c, 4d)~~ for bidirectional data interchange, and

c)   a plurality, preferably all, of the measurement devices ~~(2a, 2b, 2c)~~ and actuators ~~(3)~~ have means ~~(5)~~ for data interchange with a service appliance ~~(6)~~ which can be connected.

2. (Currently Amended) The process control system as claimed in claim 1, ~~characterized in that~~ wherein the means ~~(1)~~ for information processing and for data interchange between the measurement devices ~~(2a, 2b, 2c)~~ and actuators ~~(3)~~ are a microcomputer with interface devices for bidirectional data interchange.

3. (Currently Amended) The process control system as claimed in claim 1 ~~or 2~~, ~~characterized in that~~ wherein the means ~~(5)~~ for data interchange with a service appliance ~~(6)~~ which can be connected are an interface device for bi-directional data interchange and a plug-in apparatus, with the interface device being designed to provide current data relating to the process state for calling up.

4. (Currently Amended) The process control system as claimed in ~~one of claims 1 to 3, characterized in that~~ claim 1, wherein point-to-point links are produced as means ~~(4a, 4b, 4c, 4d)~~ for bidirectional data interchange.

5. (Currently Amended) The process control system as claimed in ~~one of claims 1 to 3, characterized in that~~ claim 1, wherein a bus system, to which all of the measurement devices ~~(2a, 2b, 2c)~~ and actuators ~~(3)~~ are connected, is provided as the means ~~(4a, 4b, 4c, 4d)~~ for bidirectional data interchange.

6. (Currently Amended) The process control system as claimed in ~~one of claims 1 to 5, characterized in that~~ claim 1, wherein a laptop or a PDA is used as the service appliance ~~(6)~~ which can be connected.

7. (Currently Amended) The process control system as claimed in ~~one of claims 1 to 6, characterized in that~~ claim 1, wherein the measurement devices ~~(2a, 2b, 2c)~~ and actuators ~~(3)~~ are designed to carry out plausibility checks and diagnoses.

8. (Currently Amended) The process control system as claimed in ~~one of claims 1 to 7, characterized in that~~ claim 1, wherein the measurement devices ~~(2a, 2b, 2c)~~ and actuators ~~(3)~~ are designed for preprocessing of recorded data.

9. (Currently Amended) A method for operation of a process control system as claimed in ~~one of claims 1 to 8, characterized in that~~ claim 1, wherein

- data which has been recorded in measurement devices ~~(2a, 2b, 2c)~~ of the system by sensors of the measurement devices ~~(2a, 2b, 2c for example 2c)~~ and has possibly been obtained by preprocessing is linked to data from other measurement devices ~~(2a, 2b, 2c, for example 2a and 2b)~~, and all of the data

is stored and is transmitted to the respective other measurement devices (2a, 2b, 2c) and to actuators (3), and

- data which has been called up from a service device (6) which is connected to measurement devices (2a, 2b, 2c) or actuators (3) is emitted.

10. (Currently Amended) The method as claimed in claim 9, characterized in that wherein self-diagnoses are carried out in the components (2a, 2b, 2c, 3) of the process control system, whose results are likewise stored such that they can be called up by a service device (6).

11. (NEW) The process control system as claimed in claim 2, wherein the means for data interchange with a service appliance which can be connected are an interface device for bi-directional data interchange and a plug-in apparatus, with the interface device being designed to provide current data relating to the process state for calling up.

12. (NEW) The process control system as claimed in claim 11, wherein point-to-point links are produced as means for bidirectional data interchange.

13. (NEW) The process control system as claimed in claim 12, wherein a bus system, to which all of the measurement devices and actuators are connected, is provided as the means for bidirectional data interchange.

14. (NEW) The process control system as claimed in claim 13, wherein a laptop or a PDA is used as the service appliance which can be connected.

15. (NEW) The process control system as claimed in claim 14, wherein the measurement devices and actuators are designed to carry out plausibility checks and diagnoses.

16. (NEW) The process control system as claimed in claim 15, wherein the measurement devices and actuators are designed for preprocessing of recorded data.

17. (NEW) A method for operation of a process control system as claimed in claim 16, wherein:

data which has been recorded in measurement devices of the system by sensors of the measurement devices and has possibly been obtained by preprocessing is linked to data from other measurement devices, and all of the data is stored and is transmitted to the respective other measurement devices and to actuators, and

data which has been called up from a service device which is connected to measurement devices or actuators is emitted.

18. (NEW) A process control system, comprising:

measurement devices and actuators, each of which includes means for information processing and for data interchange between the measurement devices and actuators;

means for interconnecting the measurement devices and actuators for bidirectional data interchange; and

means, provided with multiple ones of the measurement devices and actuators, for data interchange with a service appliance which can be connected.